

USACHPPM April 17, 2000
Errata Summary for
ERDEC-TR-489; Evaluation of Airborne Exposure Limits for G-Agents:
Occupational and General Population Exposure Criteria, April 1998
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On 29 Feb 2000, an Erratum Sheet for the subject document was released by SJ Johnson, Chief, Technical Releases Office, U.S. Army Edgewood Chemical and Biological Center (ECBC), Aberdeen Proving Ground, MD. **The primary change to the 1998 document is a modification to the recommended short-term exposure limits (STELs) values and the associated discussion regarding the derivation of these values.** The modified values are presented in the Table below. Additional modifications are primarily editorial. In total, 18 modified pages were provided in the ECBC Erratum to replace pages in the 1998 report. The changes made are detailed below.

TABLE.

Application	Recommended AELs (STELs)				
	GB	GA	GD	GF	
STEL	0.002	0.002	0.001	0.001	1998 values (now revised)
	0.0004	0.0004	0.0002	0.0002	Revised recommendations based on revised interpretation of the "STEL"; see comments 10-17 below

1) Executive Summary (p. 4), last para., line 1----substitute "WPL" for "TLV-TWA." Text should read "Exposures above the WPL up to the STEL..."

2) Executive Summary (p. 5), Summary Table "Recommended Airborne Exposure Limits..."----Substitute new estimates of STEL for Occupational Workers as follows: GB/GA, 0.0004 mg/m³; GD/GF, 0.0002 mg/m³.

3) Background (p. 14), Table 1----slight adjustment on placement of bonds on the oxygen atom in the structural formula of agents GD and GF, such that double bond to O and single bond to F are centered on the oxygen, rather than the O-P bond.

4) Findings/Discussion, Sect. 3.4.1, (p. 47), last line----Insert new text below after word "where:" following Equation (5):
 "C_{exp HUMAN} = human equivalent exposure concentration

Resp_{ANIMAL} = animal (rat) respiratory volume (0.21 L/min, resting)"

5) Findings/Discussion, Sect. 3.4.1, (p. 48), under header "For chronic inhalation exposure in rats"----slight spacing change in location of word "resting" in definition of "Resp_{exptl}", and location of words "days/week" in definition of "Exp_{occup}."

6) Findings/Discussion, Sect. 3.4.1, (p. 49), para. 1----new text deletes previous duplicative text present on p. 49 of 1998 report "population is screened to exclude.... value of 3 was used." New para. 1 text on p. 49 begins "for UF₄ because..."

7) Findings/Discussion, Sect. 3.4.1, (p. 49), last line----Following the line

WPL = 0.000033 mg/m³ (recalculated),

new text (from p. 50, para. 1, of the 1998 report) has been inserted as follows: "The above AEL agrees with the existing AEL for GB (0.0001 mg/m³), only varying by a factor of 3. Generally speaking, risk assessment guidelines are considered "reasonable estimates" (with an uncertainty spanning perhaps an order of magnitude)." This insertion is a consequence of the deletion of duplicative text (see Item 6 above) at the top of p. 49, causing text from p. 50 of the 1998 report to "roll up."

8) Findings/Discussion, Sect. 3.4.1, (p. 50), line 1----New start to page (due to "roll up" described in Item 7 above),

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beginning “Therefore, the existing AEL...”

9) Findings/Discussion, Sect. 3.4.1.1, (p. 50), para. 2, line 2----substitute new text “human exposures (40 min)(McKee and Woolcott, 1949)” for former text “(McKee and Woolcott, 1949) human exposures (40 min).”

10) Findings/Discussion, Sect. 3.4.1.1, (p. 50), Equation 9----Calculation of the STEL in the 2 lines following presentation of Equation 9 has been altered to include a new expression to adjust for a one day exposure, and a new calculated value for the STEL. The NEW calculation is as follows:

$$\text{“STEL} = 0.06 \text{ mg/m}^3 \times \frac{10.0 \text{ L/min} \times 40 \text{ min} \times 1 \text{ day}}{20.8 \text{ L/min} \times 60 \text{ min} \times 5 \text{ day}} \times \frac{1}{10}$$

STEL = 0.0004 mg/m³ (15-min TWA; 4 exposures/day)”

11) Findings/Discussion, Sect. 3.4.1.1, (p. 50), next-to-last para., line 3---Insert new text “x 5 days/week” to follow “in a day” so that new text reads “...in a day x 5 days/week.”

12) Findings/Discussion, Sect. 3.4.1.1, (p. 50), last para.----Delete the two lines “Cumulative effects...as those (0.06” from 1998 report and substitute new text as follows:

“Cumulative effects of a repeated exposure to GB vapor might be expected at the developed STEL concentrations because they are derived from data involving repeated human exposures to GB vapor (McKee and Woolcott, 1949; Table 8, Group II data) in which”

13) Findings/Discussion, Sect. 3.4.1.1, (p. 51), first para.----Delete the two lines “GB (0.06 mg/m³)...the exposed humans” from the 1998 report and substitute new text as follows:

“miosis was noted on the first day and additional clinical signs of minimal severity were observed on subsequent days of a repeated exposure to GB vapor.”

14) Findings/Discussion, Sect. 3.4.1.1, (p. 51), under header “For short-term human exposure data”----Definition of Exp_{occup} has been adjusted for days of exposure to now read “...(15 min x (4)/day x 5 days/week)”. Definition of Exp_{exptl} has been adjusted for days of exposure to read “...(40 min/day x 1 day)”.

15) Findings/Discussion, Sect. 3.4.1.1, (p. 51), para. 3, line 2----the word “occasionally” is now enclosed by parentheses.

16) Findings/Discussion, Sect. 3.4.1.2, (p. 52), first line----removal of duplicative text “Cresthull et al. (1957)...for the monkey, which they” from 1998 report. New first line to this page beginning “referred to as the ICt50...”.

17) Findings/Discussion, Sect. 3.5., (p. 67), Table 9----Substitute new estimate of 0.0004 mg/m³ for STEL in the “Occupational” column for both “Recalculated or Developed” and “Recommended” entries.

18) Findings/Discussion, Sect. 3.5., (p. 67), last para., last line----new last line “or were not supported by the available data. The data from a classified” as “roll up” text from top of p. 68 in 1998 report.

19) Findings/Discussion, Sect. 3.5., (p. 68), first line----new page start at “source indicated that potency...”

20) Findings/Discussion, Sect. 3.5., (p. 68), Table 10----Substitute new estimates of STEL for Occupational Workers as follows: GB/GA, 0.0004 mg/m³; GD/GF, 0.0002 mg/m³.

21) Conclusions, Sec. 4, Table 11--Substitute new estimates of STEL in the “Occupational” section for both “Recalculated or Developed” and “Recommended” entries as follows: GB/GA, 0.0004 mg/m³; GD/GF, 0.0002 mg/m³.

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